

Exploration EVA Purge Flow Assessment

Moses Navarro

Hamilton Sundstrand (ESCG)

Bruce Conger

Hamilton Sundstrand (ESCG)

ABSTRACT

An advanced future spacesuit will require properly sized suit and helmet purge flow rates in order to sustain a crew member with a failed Portable Life Support System (PLSS) during an Extravehicular Activity (EVA). A computational fluid dynamics evaluation was performed to estimate the helmet purge flow rate required to washout carbon dioxide and to prevent the condensing (“fogging”) of water vapor on the helmet visor. An additional investigation predicted the suit purge flow rate required to provide sufficient convective cooling to keep the crew member comfortable. This paper summarizes the results of these evaluations.